

E. & C. POULLAIN.
Driving Belt.

No. 235,018.

Patented Nov. 30, 1880.

_ FIG_1 _



_ FIG_2 _



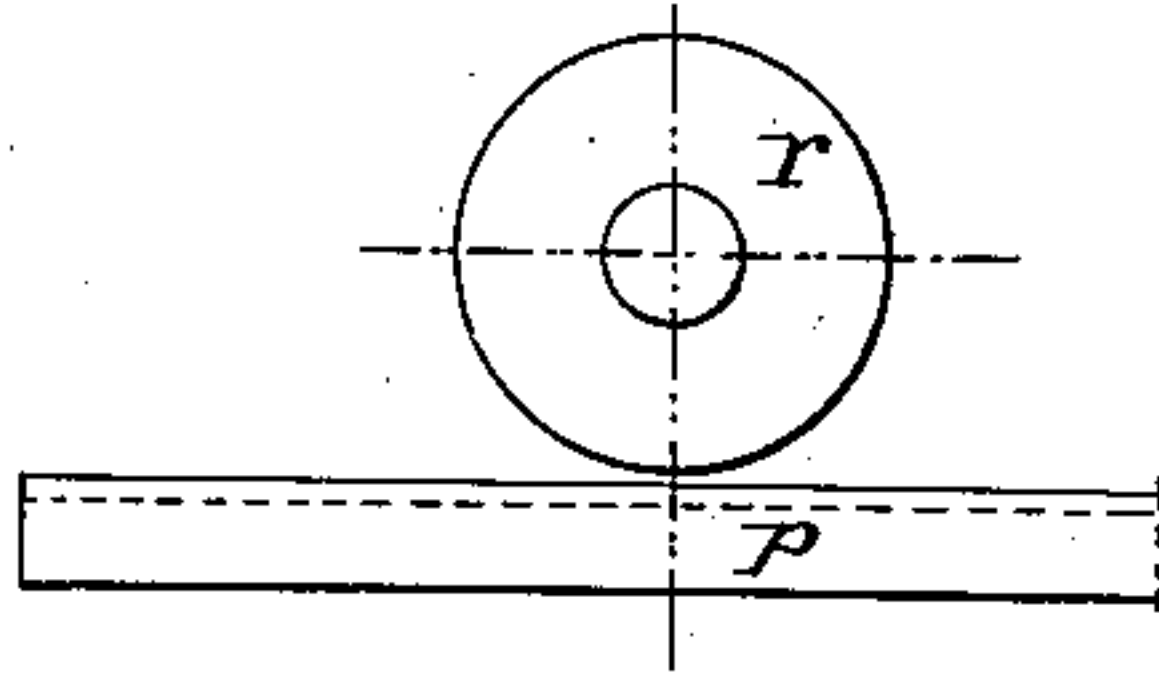
_ FIG_3 _



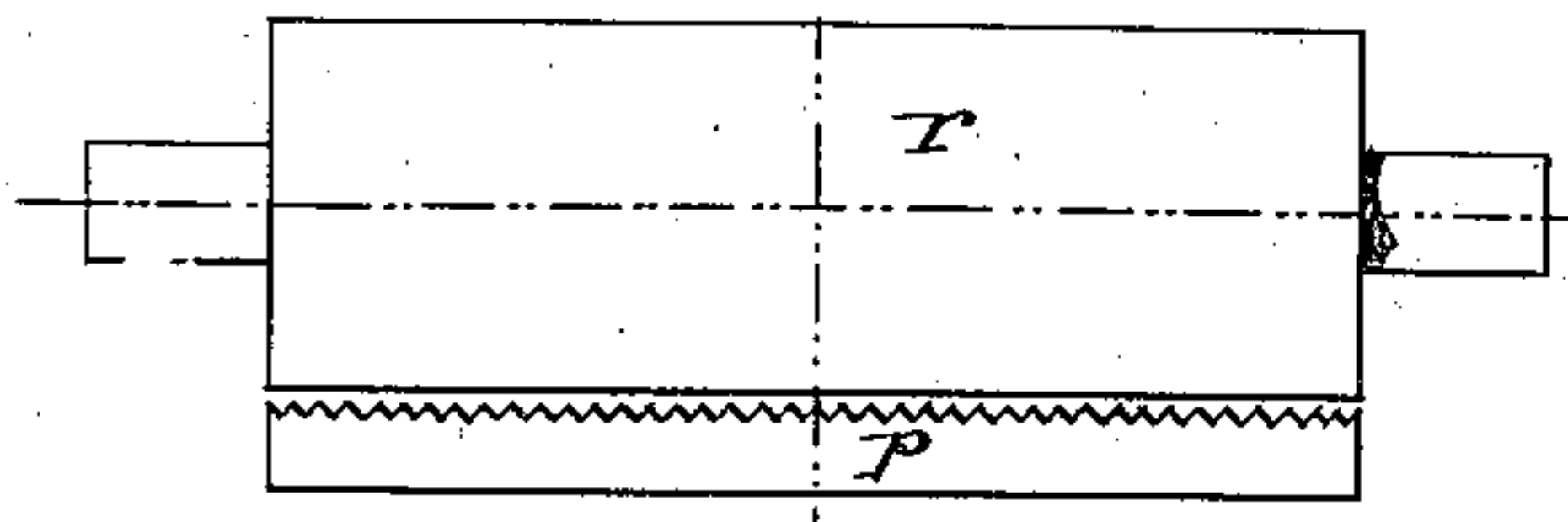
_ FIG_4 _



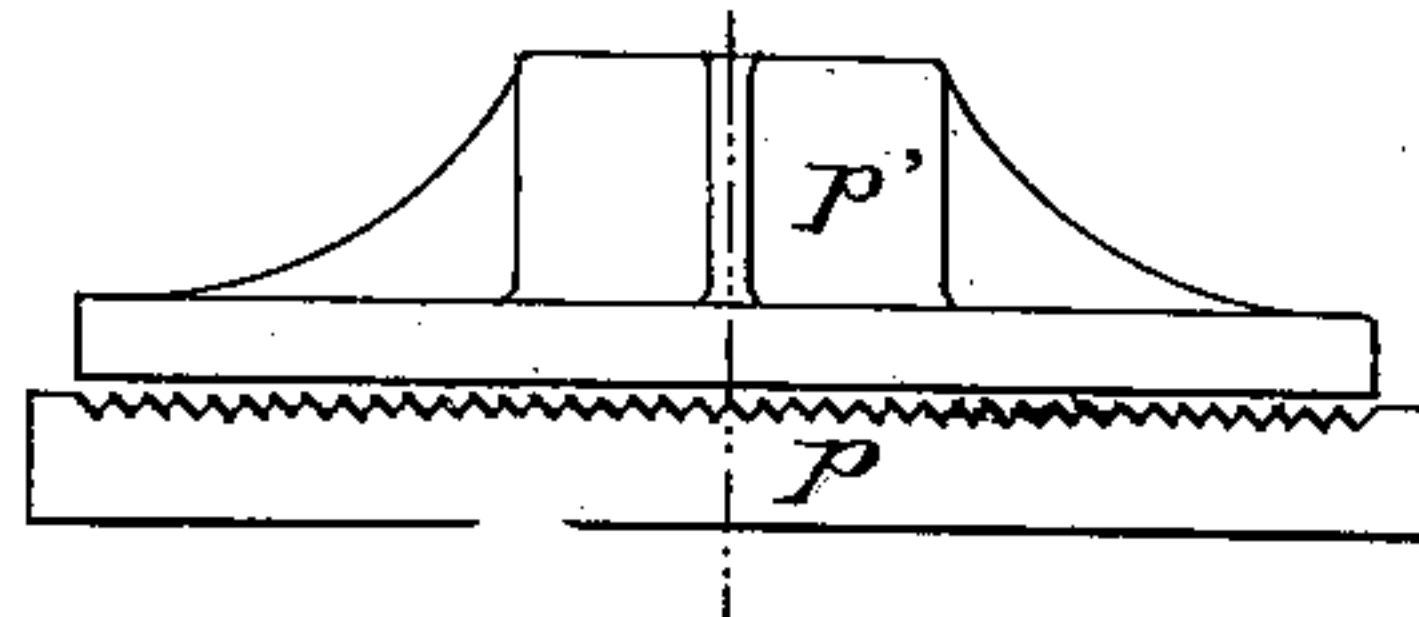
_ FIG_12 _



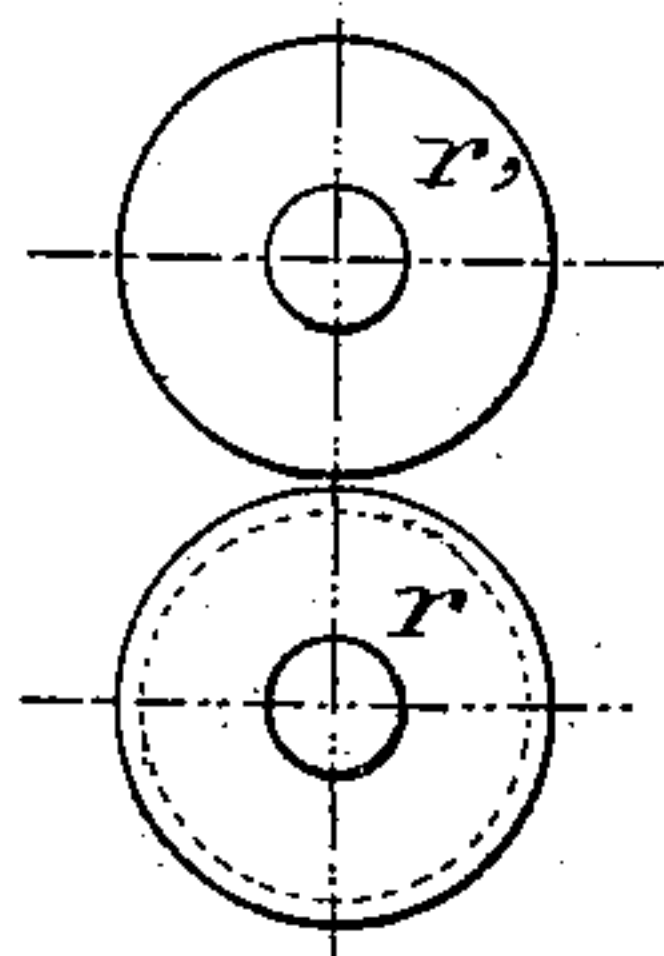
_ FIG_13 _



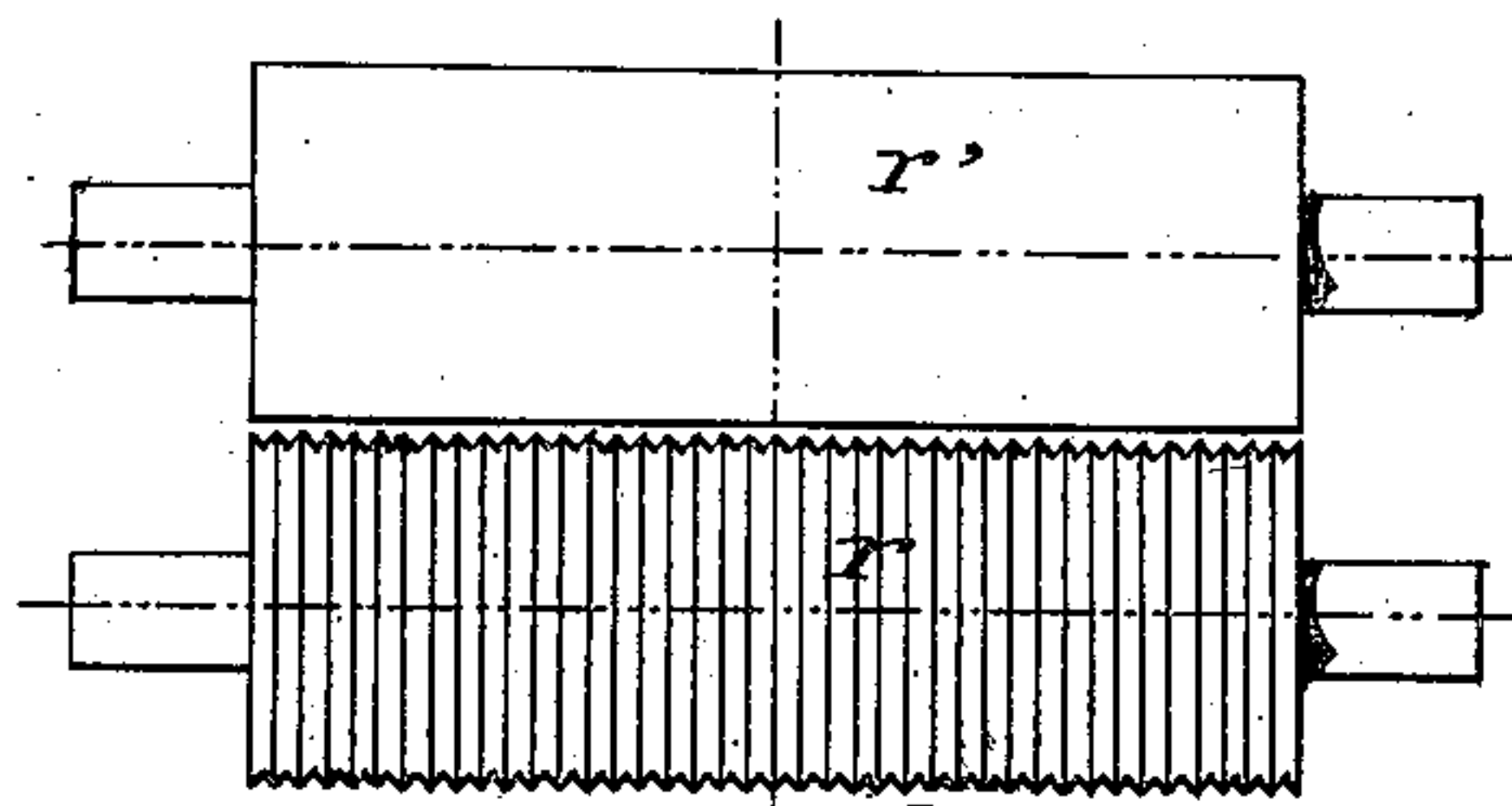
_ FIG_9 _



_ FIG_10 _



_ FIG_11 _



Witnesses:

J. Poney
A. Bléreau

Inventor.

E. & C. Poullain
Charles Poullain

Scale for fig. 9 to 17.

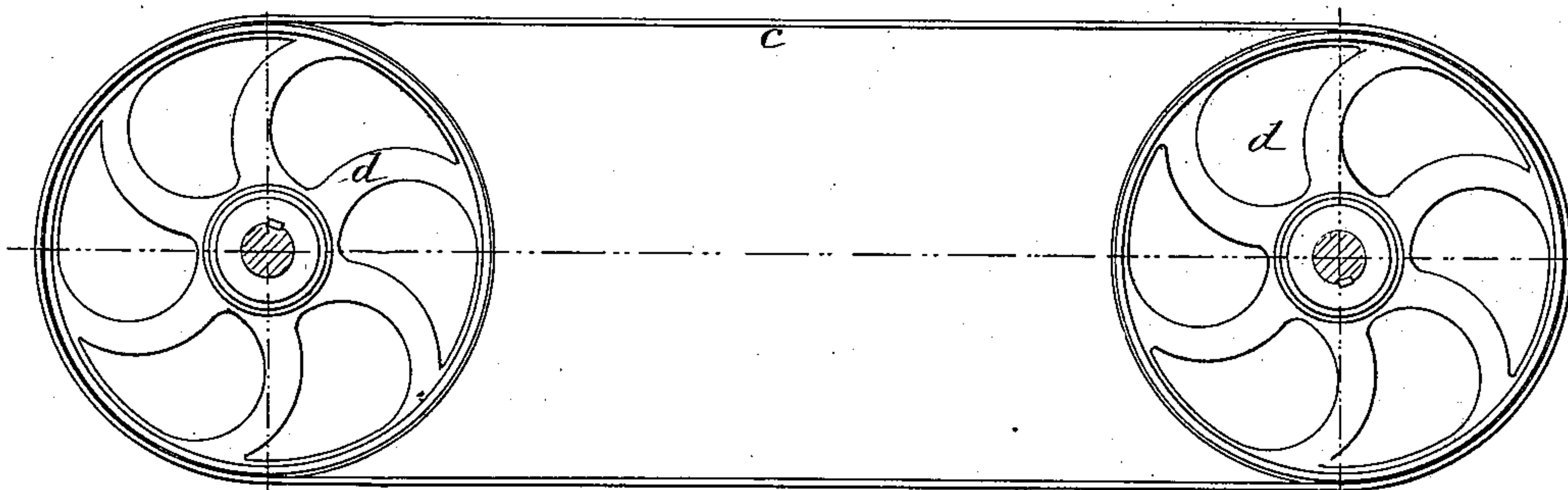
1Foot.

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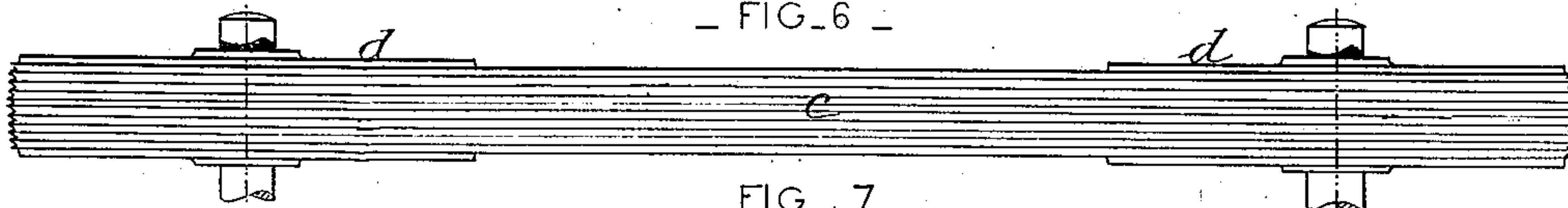
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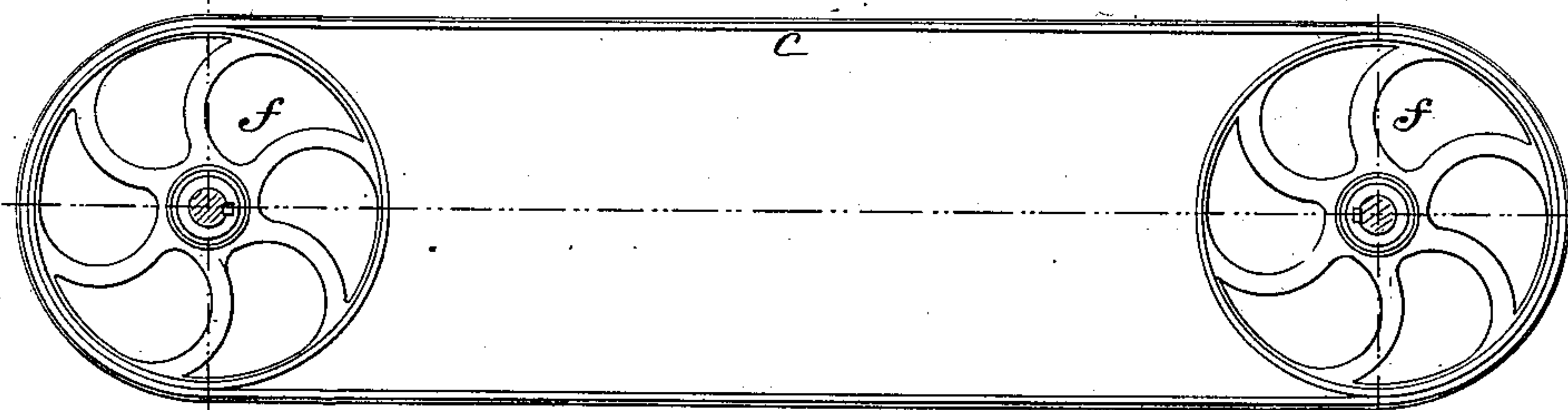
— FIG. 5 —



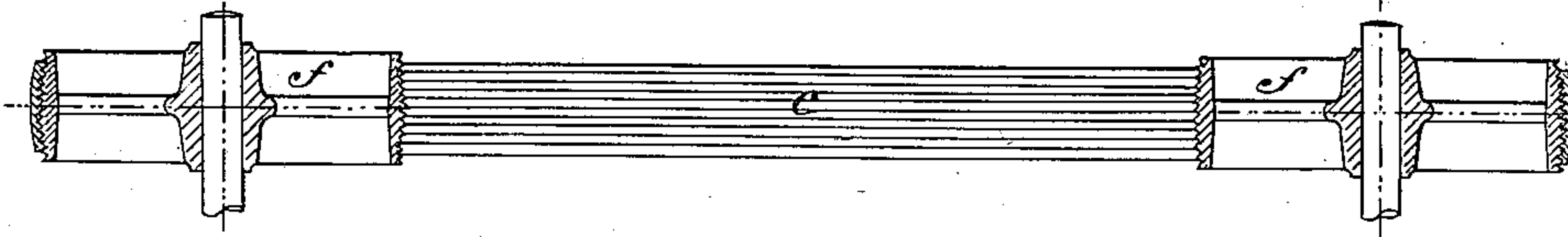
— FIG. 6 —



— FIG. 7 —



— FIG. 8 —



Witnesses:

J. Pacey
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Charles Poullain

Scale for fig. 5 to 8.

2 Feet.

UNITED STATES PATENT OFFICE.

ERNEST POUILLAIN AND CHARLES POUILLAIN, OF PARIS, FRANCE.

DRIVING-BELT.

SPECIFICATION forming part of Letters Patent No. 235,018, dated November 30, 1880.

Application filed June 5, 1879. Patented in France February 3, 1879.

To all whom it may concern:

Be it known that we, ERNEST POUILLAIN and CHARLES POUILLAIN, of Paris, France, have invented certain new and useful Improvements in Driving-Belts for Machinery, of which the following is a full, clear, and exact description, reference being had to the annexed drawings.

Our invention consists, first, in a driving-belt for machinery formed with a series of continuous longitudinal grooves in one or both of its sides; second, in a driving-belt for machinery composed of two leather bands having their opposing faces formed with a series of continuous longitudinal grooves, and fitted together, all as hereinafter more fully described.

In the accompanying drawings, Figures 1, 2, 3, and 4, Sheet 1, represent sections of grooved belts or bands. The section Fig. 1 has one face smooth and the other with grooves very rounded at the top, the section Fig. 2 smooth on one side and the other with angular grooves or channels. Fig. 3 has double grooves, producing an undulated section, and Fig. 4 is a section of a double belt having its two outside edges smooth. In Sheet 2, Figs. 5 and 6 are an elevation and plan of a smooth-faced pulley with a belt or band with external channeling or grooving. Figs. 7 and 8 represent, in elevation and horizontal section, the application of an internally-grooved belt to a pulley with cast grooves.

As will be seen by Figs. 1, 2, 3, 4, what is meant by grooved belts or bands of leather, india-rubber or gutta-percha, india-rubber tissues, and so forth, is belts of these materials on which are formed, as hereinafter described, ribs extending from end to end of the belt or band in a parallel sense, as well as a progressive projection or projections, as the case requires, and separated by hollows more or less deep and more or less wide, according to the thickness of the leather and the width of the belts. To produce these longitudinal ribs or grooves we employ appropriate machines, and which may be summarized as three principal types:

First. The first machine consists, as is shown by Fig. 9, Sheet 1, of a press, the plate

of which, p , is grooved. We place the leather on this plate on the side where the grooves are required, and press thereon with the smooth movable plate p' , leaving the leather there till the grooves are well formed.

Second. The apparatus, Figs. 10 and 11, is a kind of laminating-machine with two rollers, r r' , one of which, r , is grooved. The leather is passed between these two rollers. The surface of the leather to be grooved turns toward the grooved roller r . Pressure is then exercised on the axis of the smooth roller r' by means of a screw or otherwise, and by putting the machine in motion, either mechanically or by hand, the leather is gently passed and re-passed between the rollers, if so required, and is withdrawn with the grooves impressed thereon.

Third. The third machine, Figs. 11 and 12, Sheet 1, comprises as the essential organs a grooved plate, p , and above it the smooth roller r , producing by any suitable means a more or less active pressure. The roller r and the plate p (on which the leather is applied on the side to be grooved) work together slowly, the leather under pressure of the roller takes the impression of the grooves of the plate by passing it through once or twice, as required.

The speed of the two rollers r r' , Figs. 10 and 11, and plate p and roller r , Figs. 12 and 13, may be identical or vary more or less, according as it may be desired to avoid lengthening the leather or to stretch it within prescribed limits.

In making double or triple bands or belts the faces are grooved which should meet, and the leathers a b are united at the grooved sides or faces. (See Fig. 4.) The grooves are disposed so as to gear one with the other, the grooves being coated with size or glue, gutta-percha, or some equivalent adhesive matter when it is desired to unite them closely by means of such substance, and aided by a fixed pressure. The bands or belts may also be united by thread, screws, rivets, eyelets, and so on.

A belt or band constructed according to our invention possesses many advantages, among which it may be stated that the belts, being fully stretched during the grooving operation,

are not liable to stretch farther. The leather
by the grooving process has its pores closed,
and is thickened and strengthened at the
ribbed parts, and the belt, being grooved lon-
3 gitudinally, will not twist on the pulleys. If
desired, the pulleys or wheels which these belts
pass over may be corrugated, so that the ribs
of the pulley fit into the grooves of a belt when
the grooved face of a belt is applied to such
10 pulley.

Having thus described our invention, we
claim—

1. A driving-belt for machinery, formed with

a series of continuous longitudinal grooves in
one or both of its sides, as described. 15

2. A driving-belt for machinery, composed
of two leather bands having their opposing
faces formed with a series of continuous lon-
gitudinal grooves, and fitted together, as here-
in described.

ERNEST POUILLAIN.
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Witnesses:

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